

What is claimed is:

1. A tracking system employing cellular network control channels, leveraging existing Roamer Record Exchange Systems (RRES), the tracking system comprising:
  - 5 a cellular transceiver installed in a tracking target; and
  - a central server for paging the installed cellular transceiver to enter into a tracking mode over a cellular network control channel, and collecting tracking mode information provided through RRES to map information such as Cell Site ID and Sector for use as reference points for the tracking of the tracking target.
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2. The system according to claim 1, further includes a chase vehicle deployed to a tracked location to enable the interception of a stolen vehicle, the chase vehicle including a tracking module having:
  - 15 a Doppler direction finder for finding the direction of the stolen vehicle's cellular transceiver;
  - a tracking radio linked to the Doppler direction finder; and
  - an updating radio set to periodically update the chase vehicle's position in one direction, and update the control channel frequency, used by the tracking mode and tuned into the tracker module, in the other direction.
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3. The system according to claim 2, wherein the chase vehicle is further equipped with a Global Positioning System (GPS) receiver for determining its own location with respect to one or more cell sites identified as being close to the target to enable the chase vehicle to more quickly travel to an area determined by the identified cell sites.
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- 30 4. The system according to claim 1, further comprising means for using a determined unusable control channel to transmit tracking information so as to further minimize drain on cellular network resources.

5. A tracking method employing cellular network control channels, leveraging existing Roamer Record Exchange Systems (RRES), the method comprising the steps of:

- (i) installing a cellular transceiver in a tracking target; and
- 5 (ii) paging the installed cellular transceiver, over a cellular network control channel, to enter into a tracking mode to identify, from information provided through the RRES, one or more cell sites located near the tracking target so as to enable the tracking of the tracking target.

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6. The method according to claim 5, further includes the step of deploying a chase vehicle to a tracked location to enable the interception of a stolen vehicle, the chase vehicle including a tracking module having:

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- a Doppler direction finder for finding the direction of the stolen vehicle's cellular transceiver;
- a tracking radio linked to the Doppler direction finder; and
- an updating radio set to periodically update the chase vehicle's position in one direction, and update the control channel frequency, used by the tracking mode and tuned into the tracker module, in the other direction.

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7. The method according to claim 6, wherein the chase vehicle is further equipped with a Global Positioning System (GPS) receiver for determining its own location with respect to one or more cell sites identified as being close to the target to enable the chase vehicle to more quickly travel to an area determined by the identified cell sites.

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8. The system according to claim 5, further comprising the step of using a determined unusable control channel to transmit tracking information so as to further minimize drain on cellular network resources.

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9. A tracking system employing cellular network control channels, the system comprising:

- means for installing a cellular transceiver in a tracking target; and

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means for paging the installed cellular transceiver, over a cellular network control channel, to enter into a tracking mode to identify, from information provided through the RRES, one or more cell sites located near the tracking target so as to enable the tracking of the tracking target.

10. The system according to claim 9, further includes a chase vehicle deployed to a tracked location to enable the interception of a stolen vehicle, the chase vehicle including a tracking module having:

- 10        a Doppler direction finder for finding the direction of the stolen vehicle's cellular transceiver;
- 15        a tracking radio linked to the Doppler direction finder; and
- 15        an updating radio set to periodically update the chase vehicle's position in one direction, and update the control channel frequency, used by the tracking mode and tuned into the tracker module, in the other direction.

11. The system according to claim 10, wherein the chase vehicle is further equipped with a Global Positioning System (GPS) receiver for determining its own location with respect to one or more cell sites identified as being close to the target to enable the chase vehicle to more quickly travel to an area determined by the identified cell sites.

12. The system according to claim 9, further comprising means for using a determined unusable control channel to transmit tracking information so as to further minimize drain on cellular network resources.

13. A storage medium readable by a computer, the medium encoding a computer process to provide a tracking method employing cellular network control channels, leveraging existing Roamer Record Exchange Systems (RRES), the computer process comprising:

- 25        a processing portion for installing a cellular transceiver in a tracking target; and

a processing portion for paging the installed cellular transceiver, over a cellular network control channel, to enter into a tracking mode to identify, from information provided through the RRES, one or more cell sites located near the tracking target so as to enable the tracking of the  
5 tracking target.

14. The method according to claim 13, further includes a chase vehicle deployed to a tracked location to enable the interception of a stolen vehicle, the chase vehicle including a tracking module having:

- 10        a Doppler direction finder for finding the direction of the stolen vehicle's cellular transceiver;  
            a tracking radio linked to the Doppler direction finder; and  
            an updating radio set to periodically update the chase vehicle's position in one direction, and update the control channel frequency,  
15        used by the tracking mode and tuned into the tracker module, in the other direction.

15. The method according to claim 14, wherein the chase vehicle is further equipped with a Global Positioning System (GPS) receiver for determining  
20        its own location with respect to one or more cell sites identified as being close to the target to enable the chase vehicle to more quickly travel to an area determined by the identified cell sites.

- 25        16. The method according to claim 13, further comprising means for using a determined unusable control channel to transmit tracking information so as to further minimize drain on cellular network resources.

APPLIED INVENTION